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ABSTRACT

This study examined the theories and beliefs about learning, teaching, and curriculum held by the course developers of an undergraduate educational technology course to determine whether their espoused beliefs were evident in actual classroom practice. The curriculum represented a radical change in a course designed to provide education students an opportunity to gain basic computer skills. The study was conducted using a variety of qualitative methods: reviewing written course documentation, interviewing the five teaching assistants, and observing staff meetings and classes. In addition, Habermas' inventory of cognitive interests provided a quantitative measure of the course developers' and instructors' world views. The findings reveal that while the espoused world views of the instructors appeared to be primarily practical (that is, teachers using judgment rather than predetermined plans to guide classroom activities), the actual implementation of the curriculum reflected a predominantly technical cognitive interest (that is, teachers providing students with explicit directions and delivering instruction, with little deviation, according to a prescribed plan). (WD)

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Curricular Change in Higher Education: What We Say and What We Do

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Curricular Change in Higher Education: What We Say and What We Do

Topic/Purpose

The present study examined the curriculum of an undergraduate educational technology course which represented a radical change in course content from what was previously taught. The purpose of this study was to examine the theories and beliefs about learning, teaching, and curriculum held by the course developers and to determine whether the espoused beliefs were evident in actual classroom practice.

Background

In February 1995, the educational media faculty, after a series of informal interviews with curriculum and teaching faculty, decided to upgrade an undergraduate course designed to provide education students an opportunity to gain basic computer skills. The change was initiated because faculty had indicated that their students were not graduating with the computer skills necessary to adequately integrate technology into the classroom. Further, no courses at that time were available for education majors to sufficiently learn how to use computers. To meet this need, it was decided that a new curriculum was in order. The current curriculum was developed during the fall quarter 1995 and was implemented the next quarter, winter 1996.

Requirements for the course as it was designed were for students to complete four self-paced modules that included (1) operating various AV equipment, (2) locating and retrieving information, (3) preparing graphic materials, and (4) planning media for learning. As described in a departmental memo which sketched a preliminary design for changing the course, "Each module contains detailed written instructions for student mastery of stated behavioral objectives."

There was not only a desire by the educational media faculty to change the subject matter taught in the class, but also to change the way the course was taught. The guiding philosophy for the proposed curriculum was based on the following beliefs:

A student-centered open-ended learning environment allows students to create a deeper, richer knowledge.
Students should be given intrinsically interesting activities.
Students should be allowed to explore concepts and learn skills on their own.
Mixed-ability, heterogeneous, collaborative work groups promote social learning.
Teachers should become facilitators and coaches.
Learning activities should be extended across blocks of time (cf. Means, 1994).

An important aspect of this study was to determine whether the new curriculum, and the instructors responsible for implementing it in the classroom, reflected these foundational beliefs, or whether a gap between theory and practice existed.

Theoretical Framework

The study used the theoretical framework of Jürgen Habermas' (1972) three human cognitive interests, or world views. Habermas proposed that human knowledge could be explained in terms of the influence of these fundamental human interests (Grundy, 1987). According to Grundy, Habermas' technical interest, also referred to as positivism, reflects the notion that people have a need to manage and control their environment. Knowledge is viewed as being gained by observation through experimentation. Teachers who provide students with explicit directions and deliver instruction according to a prescribed plan with little deviation reflect the technical interest.

The second world view, the practical interest, is based on the belief that knowledge is acquired through interacting with and understanding ones own environment. An emphasis of this interest is on the meaning making of individuals interacting with one another. This interest is based on looking at an entire situation and taking "right action" according to that situation. In terms of classroom action, teachers and students interact to make meaning of the world around them. Teachers use their judgment, not predetermined plans, to guide classroom activities.

The notion that knowledge is derived from the "critical theories" one develops is reflective of the emancipatory interest. The emphasis of this interest is on self-reflection. According to this theory, only through self-reflection can one become emancipated. Knowledge gained through

reflection provides the impetus for action. Students and teachers guided by this interest work together to shape the learning environment.

Methodology

The study was conducted using a variety of methods, primarily qualitative in nature. Data were collected from various course documents, individual interviews, informal observations in the computer lab and at staff meetings, and the Cognitive Interest Inventory.

Five instructors were included in the study. Dr. X, a professor in the educational media department, was the course director and instructor of record. This individual provided leadership in the curriculum development project but did not formally teach the course. The first teaching assistant (TA1) had taught the course for approximately a year before the curriculum change and was one of the developers of the new curriculum. TA2 was also a curriculum developer and had taught the course for two quarters under the old format. This individual had taught the course every quarter but one since the transition. A third TA (TA3) taught the course for three quarters. TA3 was not part of the curriculum development team but was a student in the class the quarter of implementation. TA4 had taught the course for two quarters and was also a TA for two other undergraduate courses.

Data Sources

Documentation. Written documents that were examined include the course syllabus, the TA course outline, the student workbook, quizzes and exams, and student surveys completed after the first two quarters of implementation.

Interviews. Each instructor was interviewed once within a week span near the end of the quarter. The following questions were used as a framework to facilitate the interviews:

> In your opinion, what is the primary purpose of education?
> What is the primary purpose of the course?
> What do students learn when they take the course?
> When you are designing a curriculum, what are the things that guide your thinking?
> In your opinion, what should be the role of a teacher in the classroom? Do you think this is true all of the time?

What is your role as a teacher in the course?
What kind of influence do you think you have on your students?
What should be the role of the student in the classroom? In all cases?
What do you think is the student's role in the course?
If a student has a question, describe how you help that student find the answer to his/her question.
Describe your interaction with students.
How do you decide what to teach?
Do you ever make changes to what is taught? If so, in what way(s)? If not, why?
What's more important: teaching what will help students do well in the class or helping students learn about what they are interested in?

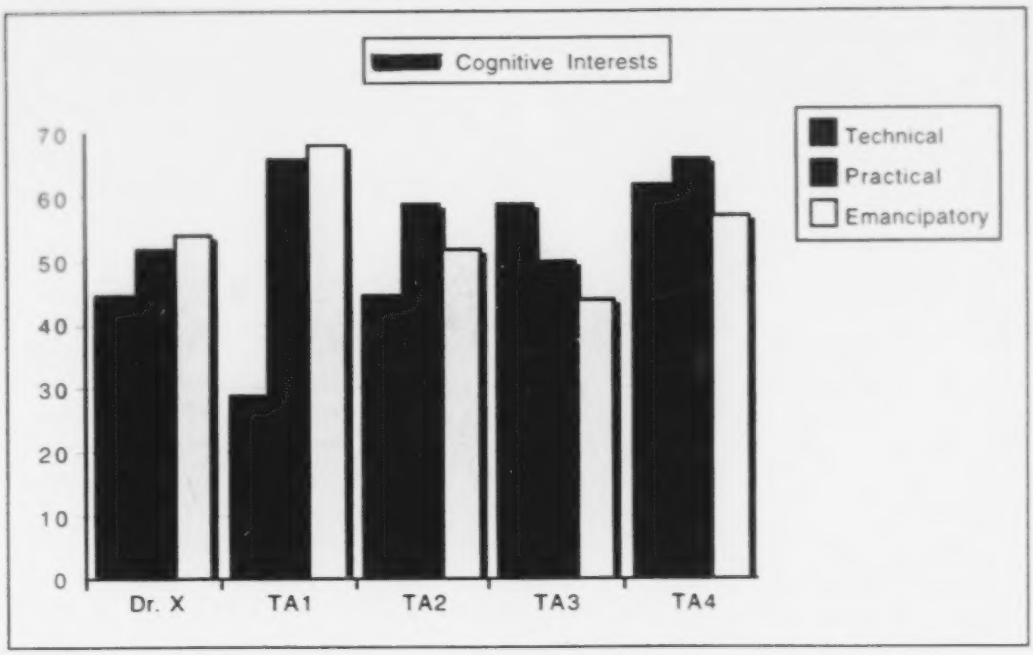
Observations. Data were collected at staff meetings and through eight informal class observations. In-class observations focused on teacher and student actions and teacher-student interactions, written information on the dry erase boards, and the physical layout of the computer lab (arrangement of workstations, etc.).

Quantitative. The Inventory of Habermas' Cognitive Interests (Butler, 1997) provided a quantitative measure of the course developers' and instructors' world views.

Data analysis. Analysis of the data involved looking for themes that revealed the instructors' beliefs about education, teaching, learning, and the curriculum development process; discrepancies in what was espoused and what was practiced; and, possible barriers to curriculum change.

Findings

Instructor cognitive interests. Results of the Cognitive Interest Inventory for each of the five instructors are displayed in the figure below.



Dr. X and TA1 were identified as predominantly having an emancipatory cognitive interest but also with a strong practical interest. TA2 held a practical world view, while TA4 held a practical-technical interest. TA3 held a predominantly technical view.

Interviews. In all but one case, the interviews supported the findings of the Cognitive Interest Inventory. Only with TA3 was a discrepancy noted between the cognitive interest reflected in the interview (practical) and that measured by the inventory (technical). The following beliefs about teaching reflect a practical interest.

Dr. X

> Just like any teacher does, you have to be understanding and listen and hear what they're saying first. How you guide them and what kinds of questions you ask them, the kind of direction you give them, is kind of an art form more than anything else. It comes from experience and you get better at it the more you do it. But, to do it professionally and with the right amount of guidance is the key.

TA1

> We're a learner too...for it to be a real learning environment I guess the instructor would have to be a learner too.

TA2

> Teaching is more about managing, facilitating, collaborating, guiding, coaching, tutoring, etc. than it is about telling, lecturing, demanding, or controlling.

> Teachers are learners alongside students and should model for students how to become a self-directed learner.

TA3. In contradiction to the results of the Cognitive Interest Inventory, interview responses by this instructor seem to indicate a practical cognitive interest. This interest was easily identifiable in the TA's description of the teacher's role:

> We should be on their side, not someone on this side trying to push information on them; we are on their side. They need to feel like we are learning along with them. I don't think they need to feel like we have all the answers, because we don't. No matter how expert we may be, we don't have all the answers about everything.
>
> We should be more like a facilitator…you kind of guide them in but you don't fill in all the blanks. They need to struggle a little bit; we kind of bail them out a little bit, but we don't take away the struggle.
>
> I think the main thing is just for you to believe in them and really make them understand that "you can do it"...because that's sometimes all people need, just to have confidence…because you need confidence to take a risk and try something…then it becomes theirs...then it's on their shoulders and then they have the confidence to continue to take more and more risks.

TA4

> [Teachers] should facilitate learning...like, I don't see a teacher as all-knowing or they have all the knowledge. I think they are probably more expert than the student, but not always. I see a teacher as being there to motivate students, to encourage students, to teach students how to learn, how to seek knowledge, and to kind of guide them.

Documentation. The syllabus listed three primary course objectives:

> (1) The student will demonstrate competencies in using and integrating instructional technologies and software applications including: a) word processing, b) spreadsheet, c) database, and d) presentation graphics
>
> (2) The student will demonstrate competencies in using e-mail and on-line database systems.
>
> (3) The student will demonstrate the ability to work cooperatively in a group.

Final grades were based on four projects (one for each of the software applications listed in the first objective above), completion of exercises in the student manual, two multiple choice quizzes, a hands-on practicum final exam, and a peer evaluation.

The student workbook included step-by-step instructions for performing particular tasks within applications. Embedded exercises were found in each chapter to give students opportunities to practice performing those tasks. Students had to complete each exercise in the booklet to receive the maximum credit for that portion of their overall grade.

Each TA followed a course outline which specified the activities that should be performed for each particular class period, the dates to announce specific assignments, deadlines for completion of specific exercises or projects, and special reminders (e.g., "Remind students to bring in floppy disks."). While the instructors indicated that they had flexibility in executing the prescribed plan, they did not feel, however, that they could leave out or change assignments since all sections of the course should provide the same opportunities for students.

> TA3: There is no justification for one of the GTAs…giving their students some kind of insight that the rest of should be giving our students. That's just...that's crazy. I mean, I know it's impossible to have 100 percent ...like, to have our teaching be 100 percent the same, 'cause we're in different classrooms and we're never in each other's classrooms to see each other's teaching. We should strive for that, because it shouldn't matter which teacher you landed with. It shouldn't affect your grade and it shouldn't affect how much you learn or how much you're exposed to.

TA4 was less likely to deviate from the prescribed plan:

> How do you decide what to teach?
> TA4: It's in the book.
>
> Do you ever deviate from that?
> TA4: No.

Observations. Important decisions that would affect the entire course were typically made collectively with all of the instructors having input. Dr. X completely trusted the TAs to run the course and sought feedback from the TAs throughout the quarter. From the initial implementation, the curriculum has been modified almost every quarter based on feedback from students and the TAs.

> Dr. X: The coverage of the content...it's a living document. That content can't ever stay the same. I rely almost more on the TAs to tell me when something works or doesn't work...I mean almost exclusively. If it doesn't work then we have to change it and we do so, collectively...Anybody that has an idea, I always try to get consensus on it.

There was basically one guideline that TAs were asked to follow in the classroom. When asked a question by a student, TAs were instructed to ask the student if they had first consulted other members of his/her group. If the student had not consulted the group, he/she was typically asked to return to the group to "try to figure it out." If the student had already consulted with his/her group, then the TA was to ask questions to help direct the student to the solution. It was an understood guideline that TAs were not supposed to directly answer a student's question. The purpose for this strategy was to facilitate group work, problem solving, and personal responsibility for learning.

> Dr. X: You can't ever really give an answer to somebody, or else you're going to undermine the whole purpose of the group and the purpose of the student.

In general, each of the TAs adhered to this strategy.

Staff meetings were typically focused on organizational issues such as reminding one another of upcoming deadlines or deciding the best way handle a situation.

In the classroom, the instructors were observed to interact with students usually only when asked a question. The instructors generally addressed the whole class only to announce upcoming deadlines or to announce the day's planned activities. Each class, the TAs used the dry erase board to list the activities that students were expected to work on and complete, deadlines for upcoming projects, and reading assignments for the next class.

Interestingly, the TAs played a minor role in assessing student performance. Another graduate assistant, who did not instruct, was responsible for grading the projects and exams.

Computers in the two labs were arranged in rows with a teacher workstation at the front of the classroom. The row format seemed to limit the interaction between some group members. If

a group of three or four was spread across one row, the students on either end were less likely to communicate.

Conclusions and Discussion

The findings of this study reveal that while the espoused world views of the instructors appeared to be primarily practical, and while the stated philosophy supposedly guiding the curriculum change reflected a practical interest, the actual implementation of the curriculum reflects a predominantly technical cognitive interest. The primary instructional focus was on students working and completing exercises that helped them practice discrete, pre-defined skills. Projects required students to conform to specific standards and students lost credit if these standards were not followed to the letter. Finally, the use of one person to take responsibility for grading indicates the belief that what students learn in the class can be easily measured by a standardized assessment.

While the predominant instructional strategies were technical, practical elements were also evident in the curriculum. Group work which emphasized collaboration and problem-solving was facilitated by the course instructors. Students were actively involved in learning the material, not merely passively receiving instruction from the teacher. It may be argued that the teacher, in this case, is the student instructional booklet. While that is true to an extent, as students work on exercises collaboratively with their group members, they can see that not all of the "knowledge" resides in the book and that they must actively seek other sources to find necessary information. Another practical aspect of the course is the way the curriculum changes based on instructor suggestions. Within that practice are the beliefs that the content and how the content is taught are not immutable.

Several times during interviews, instructors acknowledged barriers that have hampered implementation of a curriculum that more accurately reflects their espoused beliefs. For example, Dr. X envisioned students working on authentic projects with teachers in local schools, but recognized the impediments to making the project a practical reality:

> The most important thing that we don't do, that we could do, is to have students go out and to integrate technology in schools. There's really no substitute for that kind of experience. But the class is so big and the technology resources in the surrounding counties are so limited.

The large number of students taking the course was also identified by the TAs as the reason the instructional plan is strictly followed and why exercises and projects have clearly defined outcomes that can be easily graded. It seems evident that the technical approach was used in order to manage a large number of students.

The predominant technical approach may also be explained by the TA's relative lack of teaching experience and/or the lack of expertise with computers (three of the four TAs identified themselves as lacking expertise with computers). It is possible that a technical method provides a comfort zone for beginning teachers, or teachers with limited skills in the content area, since there is little emphasis on interacting with students. These teachers may also be more concerned with organizational functions of a classroom (e.g., teaching a good lesson, making sure the class is on schedule) than with the students actually learning.

An alternative analysis is also possible that a technical approach provides an effective way for students to learn how to use computers. Some content domains may lend themselves to particular instructional practices, each of which may be influenced by a particular world view. Perhaps the curriculum reflects the notion that a baseline of technical skills need to be acquired before applying them to problem-solving, integration, or similar activities. In fact, many students report that they enjoy being able to work through the exercises because they "need" the structured activities. Of course, until alternative, practical or emancipatory methods for gaining technical skills are tried and tested, we will not know if a technical approach represents the most effective method.

Limitations. A number of circumstances may limit the findings of this study. As part of the curriculum development team and as a current instructor in the course, I may have posed questions to others that may have biased the study to some degree. Perhaps another observer/interviewer would have identified actions and themes different from those reported

here. Another limitation encountered in this study is that of time. With the amount of data available in this study, additional analyses may reveal subtle themes that add support to the current findings or may reveal conflicting results. Follow up interviews would also be helpful in refining and clarifying earlier statements.

Most Significant Learning Outcome

I chose this project because of my involvement with the class and also because I suspected a mismatch existed between our stated beliefs and what we actually practiced. What I found was more revealing than what I had expected, i.e., a larger gap existed than what I had previously thought. However, the most significant thing I learned from this is that applied research clearly provides a powerful method for bridging the gap between theory and practice. Purely quantitative methods can reveal *that* practice is the way it is, but they do not provide a picture of *why* practice is the way it is. This study has revealed a clearer picture of how we believe and how we practice as well as why we practice the way we do.

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